Review Key Financial Equations

Simple Interest

$I = Prt$

Compound Interest

$A = P(1+i)^n$ i n

Regular Payments

$A = R\dfrac{[(1+i)^n - 1]}{i}$ i n

Quarterly = 4
Monthly = 12
Semi-annually = 2
daily = 365
annually = 1
weekly = 52
bi-weekly = 26

Jan 13-9:15 AM

Present Value of a Regular Annuity 8.6 p 501-508

Present Value: the amount of $ that must be invested today at a given interest rate in order to make regular withdrawls

$$PV = R\frac{[1-(1+i)^{-n}]}{i}$$

Trust Fund

Jun 2-1:37 PM

4% compounded monthly

100 withdrawls weekly for 4 years

$PV = R\dfrac{[1-(1+i)^{-n}]}{i}$

$R = 100$

$i = 0.04/12 = 0.0033$

$n = 52 \times 4 = 208$

$PV = \dfrac{100[1-(1+0.0033)^{-208}]}{0.0033}$

$= \dfrac{100[1-(1.0033)^{-208}]}{0.0033}$

$= \dfrac{100[1-0.5040]}{0.0033}$

$= \dfrac{100[0.4960]}{0.0033}$

$= \dfrac{49.60}{0.0033}$

$= 15030.30$

Jan 8-8:39 AM

Ex 2 p 503

$PV = R\dfrac{[1-(1+i)^{-n}]}{i}$

$PV = \dfrac{50[1-(1+0.00125)^{-60}]}{0.0065}$ $R = 50$ $i = 7.75\%$ $i = 0.0775$

$PV = \dfrac{50[1-(1.00125)^{-60}]}{0.006458}$ $i = 0.006458$ $\frac{12}{}$

$PV = \dfrac{50[1-0.6780]}{0.0065}$ $n = 5 \times 12 = 60$

$PV = \dfrac{50[0.2220]}{0.0065}$

$PV = \dfrac{16.1}{0.0065}$

$PV = \$2476.92$

Jun 2-1:46 PM

Ex 3 p504 $PV = R\dfrac{[1-(1+i)^{-n}]}{i}$ $n = 1 \times 12 = 12$ $i = 0.11/12$

$1500 = R\dfrac{[1-(1+0.00916666)^{-12}]}{0.00916666}$

$1500 = R\dfrac{[1-(1.00916666)^{-12}]}{0.00916666}$

$1500 = R\dfrac{[1-0.896293887]}{0.00916666}$

$1500 = R(0.103716944)$

$\dfrac{1500(0.00916666)}{(0.103716844)} = R$

$13.7499 = R$

$132.57 = R$

Total Price = 12×132.57
$= 1590.84$

Jun 2-2:01 PM

#11 p507 $PV = R\dfrac{[1-(1+i)^{-n}]}{i}$

$PV \cdot i = R[1-(1+i)^{-n}]$

$\dfrac{[1-(1+i)^{-n}]}{[1-(1+i)^{-n}]}$

$\dfrac{PV(i)}{[1-(1+i)^{-n}]} = R$ $PV = 22000$ $n = 5 \times 12 = 60$ $i = 0.024/12$ $i = 0.002$

$\dfrac{22000(0.002)}{[1-(1+0.002)^{-60}]} = R$

$\dfrac{44}{[1-(1.002)^{-60}]} = R$

$\dfrac{44}{[1-0.8870)} = R$

$\dfrac{44}{0.1129} = R$

$\$389.47 = R$

May 17-8:18 AM

p 506-508
q 2, 4, 5, 6, 9 & 12

Jun 2-2:09 PM

#8 p 507 $PV = R\frac{[1-(1+i)^{-n}]}{i}$

$PV = 35\frac{[1-(1+0.013)^{-18}]}{0.013}$ $R = 35$, $i = \frac{0.16}{12} = 0.013$, $n = 18$

$= \frac{35(1-(1.013)^{-18})}{0.013}$

$= \frac{35(1-0.787876)}{0.013}$

$\frac{35(0.2121)}{0.013}$

$= \$556.82 + 150$ dep

$= \$706.82$

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$A = P(1+i)^n$ $i = 0.06/4 = 0.015$

$A = 3600(1+0.015)^{12} = 3 \times 4$

$A = 3600(1.015)^{12} = 12$

May 31-9:48 AM